

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES

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In re Application of:	:	Examiner: Davis D. Hwu
	:	
Frank MILLER et al.	:	
	:	
For: DOSING DEVICE	:	
	:	Art Unit: 3752
Filed: April 12, 2006	:	
	:	
Serial No.: 10/534,194	:	
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 Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

**APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37**

SIR:

On September 3, 2008, Appellants filed a Notice of Appeal from the last decision of the Examiner contained in the Final Office Action dated May 2, 2008 in the above-identified patent application.

In accordance with 37 C.F.R. § 41.37, this brief is submitted in support of the appeal of the rejections of claims 19 to 26, and 28 to 41. For at least the reasons set forth below, the final rejections of claims 19 to 26, and 28 to 41 should be reversed.

**1. REAL PARTY IN INTEREST**

The real party in interest in the present appeal is ROBERT BOSCH GmbH of Stuttgart in the Federal Republic of Germany, which is the assignee of the entire right, title and interest in and to the present application.

**2. RELATED APPEALS AND INTERFERENCES**

There are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the assignee, ROBERT BOSCH GmbH, “which may be related to, directly

affect or be directly affected by or have a bearing on the Board's decision in the pending appeal."

**3. STATUS OF CLAIMS**

Claims 1 to 18, and 27 have been canceled.

Claims 19 to 26, and 28 to 41 are pending.

Claims 19, 20, 28 to 30, 32, 33, 35, 36, and 39 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,409,169 ("Saikalis et al.").

Claims 21 to 26, 31, 34, 37, 38, 40, and 41 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Saikalis et al.

A copy of the appealed claims, *i.e.*, claims 19 to 26, and 28 to 41, is attached hereto in the Claims Appendix.

**4. STATUS OF AMENDMENTS**

In response to the Final Office Action dated May 2, 2008, Appellants submitted a "Reply Under 37 C.F.R. § 1.116" ("the Reply") on July 1, 2008. The Reply did not include any amendments to the claims. As such, it is Appellants' understanding that the claims as included in the annexed "Claims Appendix" reflect the current status of the claims.

**5. SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 19 relates to a dosing device 1 for a liquid fuel. *Substitute Specification*, page 7, lines 33 to 35. Claim 19 recites that the dosing device 1 includes at least one metering device 2 adapted to meter fuel into a metering conduit 8. *Substitute Specification*, page 8, lines 4 to 15, and Figure 1. Claim 19 recites that the dosing device 1 includes a nozzle body 7 adjoining the metering conduit 8. *Substitute Specification*, page 8, lines 17 to 20, and Figure 1. Claim 19 recites that the nozzle body 7 includes at least one spray discharge opening 14 that opens into a metering chamber. *Substitute Specification*, page 9, lines 11 to 14, and Figures 2, 4, and 5. Claim 19 recites that the nozzle body 7 includes a downstream support element 15 having a swirl insert 24 arranged on a spray-discharge side. *Substitute Specification*, page 9, lines 30 to 32, and Figures 2, 4, and 5. Claim 19 recites that the at least one spray discharge opening 14 is arranged in the swirl insert 24. *Substitute Specification*, page 10, lines 9 to 12, and Figures 2, 4, and 5. Claim 19 recites that the swirl insert 24 includes at least one seat element 4 having the at least one

spray discharge opening 14 and a swirl element 16 arranged upstream from the seat element 4. *Substitute Specification*, page 10, lines 9 to 21, and Figures 2, 4, and 5.

**6. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

- A. Whether claims 19, 20, 28 to 30, 32, 33, 35, 36, and 39 are anticipated under 35 U.S.C. § 102(b) by Saikalis et al.
- B. Whether claims 21 to 26, 31, 34, 37, 38, 40, and 41 are patentable under 35 U.S.C. § 103(a) over Saikalis et al.

**7. ARGUMENT**

**A. Rejection of Claims 19, 20, 28 to 30, 32, 33, 35, 36, and 39 Under 35 U.S.C. § 102(b)**

Claims 19, 20, 28 to 30, 32, 33, 35, 36, and 39 stand rejected under 35 U.S.C. § 102(b) as anticipated by Saikalis et al. It is respectfully submitted that Saikalis et al. does not anticipate the present claims for at least the following reasons.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of Calif., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim.” Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990).

Claim 19 relates to a dosing device for a liquid fuel, including, *inter alia*, the features of at least one metering device; and a nozzle body adjoining the metering conduit, the nozzle body including at least one spray discharge opening that opens into a metering chamber, the nozzle body including a downstream support element having a swirl insert arranged on a spray-discharge side, the at least one spray discharge opening arranged in the swirl insert, in which *the swirl insert includes at least one seat element having the at least one spray discharge opening and a swirl element arranged upstream from the seat element*.

Saikalis et al. does not identically disclose, or even suggest, all of the claimed features of claim 19. For example, Saikalis et al. does not indicate the feature of at least one seat element having at least one spray discharge opening. Instead, Saikalis et al. indicates a fuel swirl plate A having a valve seat, and a separate, downstream air swirl plate B having a port, or spray discharge opening. (Saikalis et al., col. 11, lines 36 to 39; col. 11, line 59 to col. 12, line 2; and Figures 8 to 11). Thus, Saikalis et al. merely indicates one swirl plate with a

valve seat, and another, separate swirl plate with a spray discharge opening, but Saikalis et al. does not indicate a single element having both a valve seat and a spray discharge opening, as provided for in the context of claim 19. Therefore, Saikalis et al. does not identically disclose, or even suggest, the feature of *at least one seat element having the at least one spray discharge opening*.

Further, Saikalis et al. does not indicate the feature of a swirl element arranged upstream from a seat element. As more fully set forth above, Saikalis et al. indicates a valve seat formed in fuel swirl plate A. (Saikalis et al., col. 10, line 55; col. 11, line 39; and Figures 8, 9, 10A, and 11). Thus, since the valve seat and fuel swirl plate A are a single element, the swirl element cannot be upstream of the seat element; that is, the plate A cannot be upstream of itself. In addition, the air swirl plate B of Saikalis et al. also cannot be a swirl element arranged upstream from the valve seat in fuel swirl plate A because plate B is arranged downstream of plate A. Therefore, Saikalis et al. does not identically disclose, or even suggest, the feature of *a swirl element arranged upstream from the seat element*.

In addition, the Response to Arguments section of the Final Office Action states that “[s]ince the Applicants has [sic] not recited any further limitations of their seat element, the element B of Saikalis et al. is considered to be a seat element of the swirl insert because swirl element A sits atop element B.” (Final Office Action, p. 3). However, it is respectfully submitted that one of ordinary skill in the art would understand a seat element to include a valve seat. Thus, one of ordinary skill in the art would understand the seat element as recited in the presently pending claims to include a valve seat. As more fully set forth above, swirl plate A, and not element B, of Saikalis et al. includes a valve seat. Thus, since element B does not include a valve seat, element B cannot be considered to be a seat element. Therefore, as more fully set forth above, Saikalis et al. does not identically disclose, or even suggest, the features of *at least one seat element having the at least one spray discharge opening and a swirl element arranged upstream from the seat element*.

In view of the foregoing, it is respectfully submitted that Saikalis et al. does not identically disclose, or even suggest, all of the features included in claim 19.

Accordingly, it is respectfully submitted that Saikalis et al. does not anticipate claim 19.

As for claims 20, 28 to 30, 32, 33, 35, 36, and 39, which ultimately depend from claim 19 and therefore include all of the features included in claim 19, it is respectfully submitted that Saikalis et al. does not anticipate these dependent claims for at least the same reasons more fully set forth above.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

**B. Rejection of Claims 21 to 26, 31, 34, 37, 38, 40, and 41 Under 35 U.S.C. § 103(a)**

Claims 21 to 26, 31, 34, 37, 38, 40, and 41 were rejected under 35 U.S.C. § 103(a) as unpatentable over Saikalis et al. It is respectfully submitted that Saikalis et al. do not render unpatentable claims 21 to 26, 31, 34, 37, 38, 40, and 41 for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), the prior art must teach or suggest each element of the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990). In addition, as clearly indicated by the Supreme Court, it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. See KSR Int’l Co. v. Teleflex, Inc., 127 S. Ct. 1727 (2007). Further, the Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. M.P.E.P. §2143.

Claims 21 to 26, 31, 34, 37, 38, 40, and 41 ultimately depend from claim 19. As more fully set forth above, Saikalis et al. does not disclose, or even suggest, the features that *a swirl insert includes at least one seat element having at least one spray discharge opening and a swirl element arranged upstream from a seat element*.

Accordingly, it is respectfully submitted that Saikalis et al. does not disclose, or even suggest, all of the features included in claim 19, from which claims 21 to 26, 31, 34, 37, 38, 40, and 41 ultimately depend. As such, it is respectfully submitted that Saikalis et al. does not render unpatentable claims 21 to 26, 31, 34, 37, 38, 40, and 41, which ultimately depend from claim 19. *In re Fine, supra* (any dependent claim that depends from a non-obvious independent claim is non-obvious).

In view of all of the foregoing, reversal of this rejection is respectfully requested.

**8. CLAIMS APPENDIX**

A “Claims Appendix” is attached hereto and appears on the three (3) pages numbered “Claims Appendix 1” to “Claims Appendix 3.”

**9. EVIDENCE APPENDIX**

No evidence has been submitted pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellants in the appeal. An “Evidence Appendix” is nevertheless attached hereto and appears on the one (1) page numbered “Evidence Appendix.”

**10. RELATED PROCEEDINGS APPENDIX**

As indicated above in Section 2, “[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the assignee, ROBERT BOSCH GmbH, ‘which may be related to, directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.’” As such, there are no “decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]” to be submitted. A “Related Proceedings Appendix” is nevertheless attached hereto and appears on the one (1) page numbered “Related Proceedings Appendix.”

**11. CONCLUSION**

For at least the reasons indicated above, Appellants respectfully submit that the art of record does not disclose or suggest the subject matter as recited in the claims of the above-identified application. Accordingly, it is respectfully submitted that the subject matter as set forth in the claims of the present application is patentable.

In view of all of the foregoing, reversal of all of the rejections set forth in the Final Office Action is therefore respectfully requested.

Respectfully submitted,

Dated: November 3, 2008

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## **CLAIMS APPENDIX**

19. A dosing device for a liquid fuel, comprising:  
at least one metering device adapted to meter fuel into a metering conduit;  
a nozzle body adjoining the metering conduit, the nozzle body including at least one spray discharge opening that opens into a metering chamber, the nozzle body including a downstream support element having a swirl insert arranged on a spray-discharge side, the at least one spray discharge opening arranged in the swirl insert,  
wherein the swirl insert includes at least one seat element having the at least one spray discharge opening and a swirl element arranged upstream from the seat element.
20. The dosing device according to claim 19, wherein the dosing device is adapted one of (a) to input the liquid fuel into a chemical reformer to recover hydrogen and (b) to input the liquid fuel into a secondary combustion device to generate heat.
21. The dosing device according to claim 19, wherein the support element is tubular, the nozzle body including, upstream from the support element, a tubular supply tube welded downstream in hydraulically sealed manner to the tubular support element.
22. The dosing device according to claim 21, wherein the tubular supply tube is arranged as a cylindrical tubular supply tube.
23. The dosing device according to claim 21, wherein the tubular supply tube is laser-welded downstream in hydraulically sealed manner to the tubular support element.
24. The dosing device according to claim 21, wherein the support element is cylindrically tubular.
25. The dosing device according to claim 19, wherein the swirl insert is joined in hydraulically sealed manner to the support element.
26. The dosing device according to claim 19, wherein the swirl insert is joined in hydraulically sealed manner to the support element by one of (a) pressing, (b) welding and (c) laser welding.

28. The dosing device according to claim 19, wherein the swirl element is disk-shaped.

29. The dosing device according to claim 19, wherein the swirl element includes a continuous opening.

30. The dosing device according to claim 29, wherein the opening is at least partially closed off by an insert.

31. The dosing device according to claim 30, wherein the insert is connected to the swirl element by one of (a) welding and (b) laser welding.

32. The dosing device according to claim 29, wherein the opening includes a longitudinal opening axis having a directional component pointing in a flow direction.

33. The dosing device according to claim 32, wherein the swirl element includes at least one swirl conduit having a directional component arranged radially and tangentially to the longitudinal opening axis.

34. The dosing device according to claim 19, wherein the swirl element is joined to the seat element by one of (a) welding and (b) laser welding.

35. The dosing device according to claim 19, further comprising an intermediate element arranged between the swirl element and the seat element.

36. The dosing device according to claim 19, wherein the swirl element is spaced from a wall of the support element by a distance.

37. The dosing device according to claim 19, further comprising an adapter joining in hydraulically sealed and detachable manner the metering conduit and the metering device.

38. The dosing device according to claim 37, wherein the adapter includes an air inlet connected in the adapter to the metering conduit.

39. The dosing device according to claim 19, wherein the metering device is arranged as a fuel injection valve.

40. The dosing device according to claim 39, wherein the fuel injection valve is arranged as a low-pressure fuel injection valve adapted to operate at a fuel pressure of up to 10 bar.

41. The dosing device according to claim 19, wherein the metering conduit includes, in an axial extent, one of (a) at least one reduced-wall-thickness point and (b) at least one reduced-wall-thickness region.

### **EVIDENCE APPENDIX**

No evidence has been submitted pursuant to 37 C.F.R. §§1.130, 1.131, or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellants in the appeal.

### **RELATED PROCEEDINGS APPENDIX**

As indicated above in Section 2 of this Appeal Brief, “[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the assignee, ROBERT BOSCH GmbH, ‘which may be related to, directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.’” As such, there are no “decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]” to be submitted.